

Claims

1. A method for controlling combustion in a combustion
5 chamber of a combustion engine, comprising:
 - receiving (s53) a measured air-to-fuel ratio value,
 - receiving (s55) at least one estimated air-to-fuel ratio value, said air-to-fuel ratio estimate being generated in dependence of a predetermined fuel deposit factor,
 - 10 - establishing a fuel volatility value in dependence of said measured air-to-fuel ratio value and said air-to-fuel ratio estimate, and
 - controlling combustion in dependence of said fuel volatility value.
- 15 2. A method according to claim 1, wherein said measured air-to-fuel ratio value is compared to said air-to-fuel ratio estimate and said fuel volatility value is generated in dependence of said comparison.
- 20 3. A method according to claim 1, wherein said fuel volatility value is generated in dependence of said measured air-to-fuel ratio value and a plurality of air-to-fuel ratio estimates.
- 25 4. A method according to claim 3, wherein said plurality of air-to-fuel ratio estimates are of mutually different values.
- 30 5. A method according to claims 1, wherein said at least one air-to-fuel ratio estimate is generated in dependence of a predetermined fuel deposit factor (X_i) and at least one detected engine parameter value (M_f , M_a).

6. A method according to claim 4, wherein said plurality of mutually different air-to-fuel ratio estimates are generated in dependence of the same detected engine parameter value (M_f , M_a) and mutually different predetermined fuel deposit factor (X_1).
7. A method according to claim 1, wherein said measured air-to-fuel ratio value is delivered by an air-to-fuel ratio sensor (210, 11c) positioned to detect an actual air-to-fuel ratio in an exhaust manifold (225a).
8. A system for controlling combustion in a combustion chamber of a combustion engine, comprising:
- first means (335) for receiving a measured air-to-fuel ratio value (λ_{meas}),
 - second means (P1, P2...PN) for receiving at least one air-to-fuel ratio estimate ($\lambda_1, \lambda_2 \dots \lambda_N$), said air-to-fuel ratio estimate being generated in dependence of a predetermined fuel deposit factor,
 - third means (330, 700) for generating a fuel volatility value in dependence of said measured air-to-fuel ratio value and said air-to-fuel ratio estimate, and
 - fourth means (360) for controlling combustion in dependence of said fuel volatility value.
9. A system according to claim 8, wherein said third means (330, 700) is adapted to compare said measured air-to-fuel ratio value to said air-to-fuel ratio estimate and to generate said fuel volatility value in dependence of said comparison.

10. A system according to claim 8, wherein said fuel
volatility value is generated in dependence of said measured
air-to-fuel ratio value and a plurality of air-to-fuel ratio
5 estimates ($\lambda_1, \lambda_2 \dots \lambda_N$).
11. A system according to claim 8, wherein said plurality of
air-to-fuel ratio estimates ($\lambda_1, \lambda_2 \dots \lambda_N$) are of mutually
different values.
- 10 12. A system according to claim 8, wherein said third means
(330, 700) is adapted to generate at least one air-to-fuel
ratio estimate ($\lambda_1, \lambda_2 \dots \lambda_N$) in dependence of a predetermined fuel
deposit factor (X_i) and at least one detected engine parameter
15 value (M_f, M_a).
13. A system according to claim 8, wherein said third means
(330, 700) is adapted to generate a plurality of mutually
different air-to-fuel ratio estimates ($\lambda_1, \lambda_2 \dots \lambda_N$) in dependence
20 of the same detected engine parameter value (M_f, M_a) and
mutually different predetermined fuel deposit factor (X_i).
14. A system according to claim 8, wherein said air-to-fuel
ratio sensor (210, 11) is positioned to detect an actual air-
25 to-fuel ratio value in an exhaust pipe (228) and adapted to
deliver said measured air-to-fuel ratio value (λ_{meas}).
15. A computer program for causing a computerized apparatus
(8; 700) to improve combustion in a combustion chamber of a
30 combustion engine, comprising:
a computer readable code means which, when run on a
computerized apparatus (8, 700), causes the computerized
apparatus (8; 700) to:
receive (s53) a measured air-to-fuel ratio value,
35 receive (s55) at least one estimated air-to-fuel ratio

value, said air-to-fuel ratio estimate being generated
in dependence of a predetermined fuel deposit factor,

establish a fuel volatility value in dependence of
said measured air-to-fuel ratio value and said air-to-
fuel ratio estimate, and

control combustion in dependence of said fuel
volatility value.

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